WE CLAIM:

1. A system for preventing stall of a vehicle engine, said system comprising:

an integrated starter alternator operably connected with the engine, said integrated starter alternator capable of selectively operating as a starter motor for transmitting torque to the engine and as an alternator for producing electric energy;

at least one electric energy storage device in electrical communication with said integrated starter alternator;

at least one controller in electrical communication with said integrated starter alternator;

at least one sensor operably connected with the engine sending a signal indicative of engine performance to said at least one controller;

wherein said controller compares said signal to a predetermined condition indicative of engine stall and controls said at least one electric energy storage device and said integrated starter alternator to transmit a torque to the engine sufficient to prevent engine stall.

2. The system of claim 1 wherein said signal indicative of engine performance is selected from the group consisting of crankshaft speed, camshaft speed and output torque.

3. The system of claim 1 wherein said electric energy storage device is selected from the group consisting of a battery and a capacitor.

4. The system of claim 1 further comprising:

at least one sensor operably connected with the engine sending a signal indicative of engine bus voltage;

wherein said controller compares said signal indicative of engine bus voltage to a predetermined charge threshold value and controls said integrated starter alternator to charge said an electric energy storage device.

5. A method of preventing stall of a vehicle engine, said method comprising:

measuring at least one engine parameter relating to engine performance;

detecting an engine condition known to lead to engine stall by comparing said at least one engine parameter to a predetermined value; and

powering an integrated starter alternator from an electric energy storage device to apply additional torque to said vehicle engine when said engine stall condition is detected.

6. The method of claim 5 wherein said at least one engine parameter is selected from the group consisting of crankshaft speed, camshaft speed and output torque.

7. The method of claim 5 wherein said electric energy storage device is selected from the group consisting of a battery and a capacitor.

8. The method of claim 5 further comprising:

measuring at least one charge parameter relating to engine bus voltage;

detecting an engine condition known to require charging of said electric energy storage device by comparing said at least one bus voltage parameter to a predetermined charge threshold value;

driving said integrated starter alternator to charge said electric energy storage device when said charging condition is detected.